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ABSTRACT:

A synthetic resin mounting moulding (11) for a vehicle has, in section, a top (12) and a leg (13) from the inner face of which project upper (14) and lower (16) spaced arms to define first (15) and second (17) grooves. The strip is bent, under heating, into a substantially U-shape having upper (11a) and side portions (11b) of the windscreen, and is then cut so as to provide the first groove (15) in the upper portion (11a) for receiving the upper

edge of a  
glass pane (G) and both first and second grooves in the side portions  
for  
guiding rainwater and receiving the side edges of the glass pane,  
respectively.  
<IMAGE>

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None

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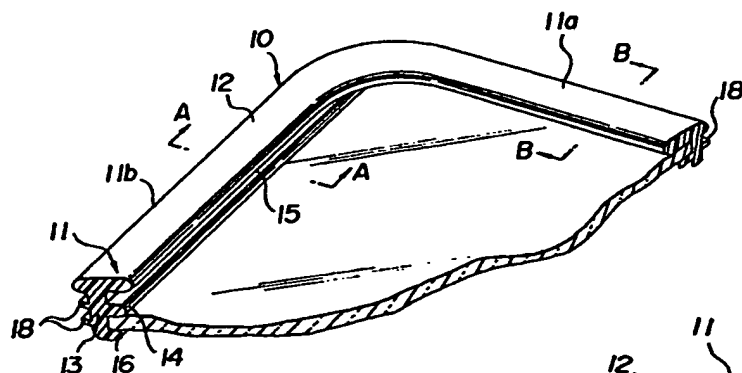
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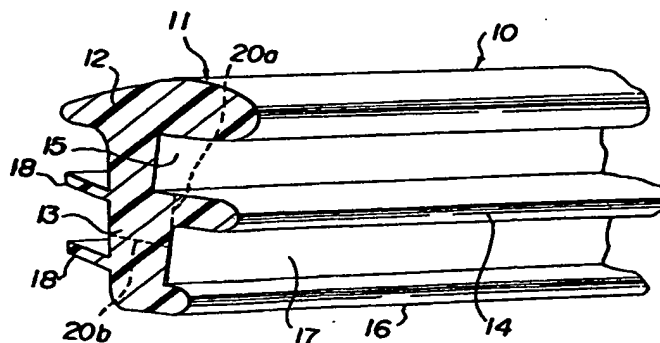
(54) Windscreen mounting

(57) A synthetic resin mounting moulding (11) for a vehicle has, in section, a top (12) and a leg (13) from the inner face of which project upper (14) and lower (16) spaced arms to define first (15) and second (17) grooves. The strip is bent, under heating, into a substantially U-shape having upper (11a) and side portions (11b) of the windscreen, and is then cut so as to provide the first groove (15) in the upper portion (11a) for receiving the upper edge of a glass pane (G) and both first and second grooves in the side portions for guiding rainwater and receiving the side edges of the glass pane, respectively.

**Fig. 3**



**Fig. 4**

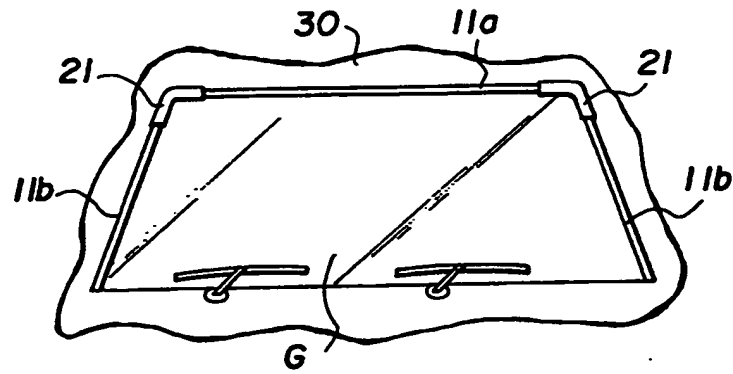
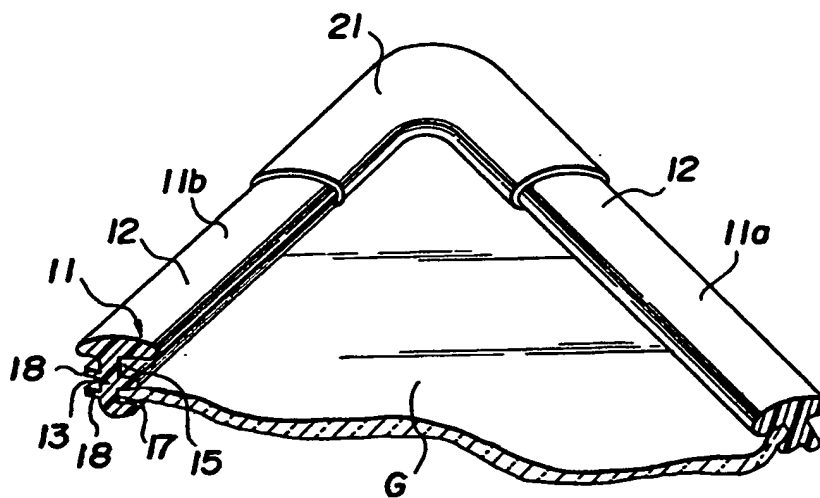


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**Fig. 7****Fig. 8**

A FRONT GLASS OR WINDSCREEN MOULDING  
AND METHOD FOR MAKING THE SAME

This invention relates to a front glass or windscreen moulding or moulding strip for use in a vehicle such as an automobile, between the body panel and front glass pane in the front portion of the vehicle, and to a  
5 method for making the moulding. More particularly, the invention relates to such a front glass moulding comprising an integrally formed body which includes a central portion and side portions each extending from and connected to the adjacent end of the central portion  
10 substantially at right angles to the central portion, and a method for making the moulding.

There have been proposed and practically employed a variety of front glass moulding for vehicles. The prior art front glass mouldings are usually employed in  
15 vehicles of the type wherein the vehicular body panel and front glass pane are connected together by means of adhesive. One of the prior art front glass mouldings is mounted in the clearance present between the edges of the opening in the vehicular body panel and the front glass  
20 pane, to fill the clearance and at the same time present a pleasing external appearance to the front portion of the vehicle. The side portions of the front glass moulding



body each have a front glass pane receiving groove in a lower portion and a rainwater guide in an upper portion of the inner surface thereof so that rainwater striking against the front glass and scattering about is prevented from invading into the cab of the vehicle while the vehicle is running in rain. However, since the side portion of the front glass moulding has the upper and lower grooves as rainwater and glass pane guides, respectively, the side portions cannot be used as the central portion of the moulding which requires only the glass pane guide groove. A separate mounting having only the front glass pane receiving groove or the guide groove thus has to be separately provided, the two mouldings being connected together by means of corner joints. The prior art front glass moulding comprises three types of components, that is, the central portion, the side portions and the corner joints connecting between the central and side portions. However, the corner joints connecting between the central and side portions present a disfigured external appearance and are easily subjected to damage. In addition, the prior art front glass moulding is expensive because the three different types of components are involved.

Japanese U. M. Appln. Publication No. 1002/1985 discloses a moulding corner joint for an automobile in which a bracket integrally projects from the undersurface of a resin moulding corner joint in the vicinity of the

associated corner of said joint and an engaging pawl is formed at the leading end of said bracket for engaging the back of a wind glass at the peripheral edge of said wind glass of the automobile.

5 Japanese Laid-Open U.M. Appln. Publication No. 12714/1984 discloses a moulding mount structure for an automobile comprising straight portions and curved joint portions in which the moulding structure is a weather strip of substantially S-shaped cross section having a windscreen  
10 receiving opening in an upper portion, a vehicular flange receiving opening in a lower portion, a moulding receiving groove in the outer surface and lips surrounding the upper peripheral edge of said groove for holding said moulding, the improvement being that an anti-  
15 displacement projection is formed on the side of said groove at each of the corners of said weather strip for abutting against the side of said groove at each corner of said weather strip so that the projection abutts the side of the associated joint portion of the moulding and  
20 that the projection extends into the bottom of said groove for positioning the end face of the associated straight portion of the moulding.

However, these prior art Japanese utility  
model applications have the inherent drawback that  
25 they require different types of components which have to be connected by connecting means and, as a result, the

assembling of the different types of components is time-consuming and expensive.

Thus, it is advantageous to provide a front glass moulding which can be produced by processing a single moulded preform to integrally form a central portion for receiving a glass pane and two side portions for receiving the front glass pane and guiding rainwater while eliminating the necessity for the corner joints connecting between the central and side portions. Such a front glass moulding is the subject of co-pending U.S. Patent Appln. Ser. No. 939,435 filed by Naohisa Miyakawa and Syosuke Seto on December 4, 1986. That U.S. application discloses a front glass moulding comprising an integrally formed synthetic resin body and having a section which includes a top and a leg extending downwardly from said top; said body having a central portion and two side portions each being connected at one end thereof to the respective adjacent end of said central portion; said central portion including a front glass receiving groove positioned below said top; said side portions each including a rainwater guide positioned below said top and a front glass receiving groove positioned below said rainwater guide in spaced relation thereto; said front glass receiving grooves in the central and side portions cooperating with each other to support a front glass pane; each said two side portions having first and second arms, said first arm extending outwardly from said leg below said top and

in substantially parallel and spaced relation to said top, said first arm defining with said top and with said leg said rainwater guide, and said second arm extending outwardly from said leg and below said first arm, said  
5 second arm defining with said top, with said leg, and with said first arm, said front glass receiving groove; said central portion having a front glass support board extending outwardly from said leg below said top and in substantially parallel and spaced relation to the top,  
10 said glass support board defining with said top and with said leg said front glass receiving groove; and wherein said glass support board has a dovetailed end received in a correspondingly shaped recess formed in said leg below said first arm.

15

The present invention provides an improvement over the subject of the co-pending U.S. application and the improvement comprises that the glass pane is supported in a groove formed in the body itself of the leg of the  
20 front glass moulding to thereby positively support the glass pane in the central portion of the moulding portion so as to prevent rainwater from invading into the moulding central portion and that the front glass moulding is positively held in position in the front  
25 portion of the automobile by the provision of a projection or projections on the leg of the moulding.

According to one aspect of the the present invention, there is provided a synthetic resin front glass moulding for a vehicle such as an automobile comprising an integrally formed body of a substantially U-shape having a laterally extending head and a leg  
5 extending downwardly from said top at a substantially right angle to the head to partially define a first groove between the under surface of the top and the inner surface of the leg, said leg having at least one  
10 projection extending outwardly from the outer surface of the leg serving as a moulding holder, and said U-shaped body including a central portion having said first groove for receiving the upper side edge of a glass pane and two side portions extending from said central portion at a  
15 substantially right angle to the central portion and each having a first arm extending inwardly from the inner surface of the side portion below said top to increase the depth of said first groove which serves as rainwater guide and a second arm extending inwardly from the inner  
20 surface of the side portion below said first arm in parallel and spaced relationship to the first arm to define a second groove between the first and second arms for receiving the associated end edge of said glass pane.

According to another aspect of the present  
25 invention, there is provided a method for producing a synthetic resin front glass moulding for a vehicle such as an automobile comprising the steps of moulding

synthetic resin into a preform in the form of a strip having a predetermined length, said strip comprising an integrally formed body having a laterally extending head and a leg extending downwardly from said top at a substantially right angle to the head to partially define a first groove between the under surface of said top and the inner surface of the leg, said leg having at least one projection extending outwardly from the outer surface of the leg serving as a moulding holder, bending said integrally formed body under heating into a substantially U-shape including a central portion and two side portions extending at a substantially right angle to said central portion and each having a first arm extending inwardly from the inner surface of the side portion below said top to increase the depth of said first groove and a second arm extending inwardly from the inner surface of said leg below said first arm in parallel and spaced relationship to the first arm to define a second groove between the first and second arms and cutting said body so as to include said first groove in said central portion for receiving the upper side edge of a glass pane and include said first and second grooves in each side portion for guiding rainwater and receiving the associated end edge of said glass pane, respectively.

The above and other objects and attendant advantages of the present invention will be more readily apparent to those skilled in the art from a reading of the following

description in connection with the accompanying drawings which show one preferred embodiment of the present invention for illustration purpose only, but not limiting the scope of the same in any way.

5        Throughout the various figures of the drawings, corresponding parts are assigned the same reference numerals.

         In the drawings:-

         Fig. 1 is a perspective view of an automobile in  
10        which the front glass moulding of the present invention is incorporated;

         Fig. 2 is a perspective view on an enlarged scale of the front portion of the automobile shown in Fig. 1 in which the front glass moulding of the invention is  
15        employed;

         Fig. 3 is a fragmentary perspective view on a further enlarged scale of Fig. 2 with portion thereof cut away showing the manner in which a glass pane is received in the front glass moulding;

20        Fig. 4 is a fragmentary perspective elevational view in partial section on a further enlarged scale of the preform from which the front glass moulding of the present invention is formed;

         Fig. 5 is a vertical sectional view on an enlarged  
25        scale taken along substantially the line A-A of Fig. 1;

         Fig. 6 is a vertically sectional view on an enlarged scale taken along substantially the line B-B of Fig. 1;

Fig. 7 is similar to Fig. 2, but shows the front portion of an automobile in which a prior art front glass moulding is employed; and

5 Fig. 8 is a fragmentary perspective view, on an enlarged scale, of Fig. 7 with portion thereof cut away.

The present invention will be now described referring to the accompanying drawings which show one preferred embodiment of the present invention. In carrying out the method of the present invention for  
10 producing the synthetic resin front glass moulding, a suitable synthetic resin is moulded into a preform in the form of a strip having a predetermined length. The preform for the front glass moulding is generally shown by reference 10 in Fig. 4 and comprises an integrally  
15 formed body 11. The body 11 includes a top 12, a leg 13 extending vertically downwardly from the top 12 at a substantially central area of the top 12, an upper or first arm 14 extending inwardly from the inner surface of the leg 13 in substantially parallel and spaced  
20 relationship to the top 12, below the latter to partially define a first groove 15 having a great depth therebetween and a lower or second arm 16 extending inwardly from the inner surface of the leg 13 below the upper arm 14 in substantially parallel and spaced  
25 relationship to the upper arm 14 to define a second groove 17 therebetween.



Upper and lower vertically spaced projections 18 extend outwardly from the outer surface of the body 11 in parallel and spaced relationship to ensure positive holding of the front glass moulding on the front portion of the automobile. The number of the projections may be reduced or increased within the scope of the present invention.

In Fig. 4, reference numeral 20a denotes a first cutting line which extends vertically through the first arm 14 coextending with the plane of the bottom of the first groove 15 and reference numeral 20b denotes a second cutting line which extends transversely through the leg 13 in a position between the first and second arms 14, 16. More particularly, the second cutting line 20b extends at an upward inclination from the opposite ends of the leg 13 towards a central area of the leg from where the cutting line extends horizontally for the purpose to be described hereinbelow.

In the production of the front glass moulding from the pre-cast 10, first of all, the first arm 14 is cut along the cutting line 20a and a central portion of the leg 13 in the length thereof is cut along the horizontal portion of the cutting line 20b, and the thus processed body 11 is bent into a substantially U-shape while being heated to form a central portion 11a and two opposite side portions 11b extending from the opposite ends of the central portion at right angles thereto. In the thus

obtained front glass moulding, the central portion 11a includes only the first groove 15 which receives the upper side edge of a glass pane G with the second groove 17 eliminated therefrom and the side portions 11a each  
5 include the first groove 15 which guides rainwater and the second groove 17 for receiving the adjacent end edge of the glass pane G.

Thus, the glass pane G is now supported on the body itself of the leg 13, but not on the first arm 14.

10 With the above-mentioned construction and arrangement of the components of the front glass moulding of the present invention, in use, the front glass moulding 10, having the glass pane G received therein, is mounted on the front portion of the vehicular body B as  
15 shown in Figs. 1 and 2 and the moulding, glass pane and vehicular body are secured together by adhesive A. As clear from the foregoing, according to the present invention, the glass pane G is slid along the grooves 17 in the side portions 11b in the moulding body 11 until  
20 the upper side edge of the glass pane G is received in the first groove 15 in the central portion 11a of the body as shown in Fig. 6. With the upper side edge of the glass pane G held in the central portion 11a, the adhesive A is poured into the space between the vehicular  
25 body panel 30, the leg 13 of the moulding body 11 and the glass pane G to thereby firmly hold the moulding on the front portion of the vehicle. When the adhesive A

solidifies, the upper and lower projections 18 firmly hold the panel 30, the body leg 13 and the glass pane G in their assembled position.

5 As described hereinabove, according to the present invention, the synthetic resin moulding body 11 can easily form the central portion 11a in which the second groove or rainwater guide 17 is not present and the side portions 11b, 11b having the upper and lower grooves or rainwater and glass pane guides 15, 17, respectively  
10 whereby the upper side edge of the glass pane G is held in position within the central portion 11a so as to positively prevent invasion of rainwater and the like into the moulding body central portion. And since the upper arm 14 and the material of the leg 13 positioned  
15 below the cutting line 20b are removed in the production of the front glass moulding from the strip of the preform, saving in the material can be attained. Further, the corner strips are not necessary between the central portion and side portion. Thus, according to the  
20 present invention, the front glass moulding can be produced from a single preform in the form of a strip different from the prior art front glass mouldings which require the three different types of components, that is, the central area, legs and corner joints. Thus, the  
25 front glass moulding of the invention can be formed easily and economically.

Furthermore, since the glass pane G is supported on the body of the leg 3 in the central portion 11a of the front glass moulding, the support of the glass pane in the moulding central portion is more secure.

5 Figs. 7 and 8 show for comparison purpose, one prior art front glass moulding which employs the three different types of components, that is, the central portion 11a, the side portions 11b and the corner joints 21 which connect between the central and side portions  
10 11a, 11b.

While the present invention has been particularly shown and described with reference to a preferred embodiment thereof, it will be understood by those skilled in the art that various changes in form and details may be made  
15 therein without departing from the spirit and scope of the invention as hereinbefore described and as defined in the following Claims.

20

25

CLAIMS

1. A front glass or windscreen moulding for a vehicle such as an automobile, comprising an integrally formed body of a substantially U-shape having a laterally extending head or top and a leg extending downwardly from said top at a substantially right angle to the top to partially  
5 define a first groove between the under surface of the top and the inner surface of the leg, said leg having at least one projection extending outwardly from the outer surface of the leg to serve as a moulding holder, and  
10 said U-shaped body including a central portion having said first groove for receiving the upper edge of a glass pane and two side portions extending from said central portion at substantially right angles to the central portion and each having a first arm extending inwardly from the  
15 inner surface of the side portion below said top to increase the depth of said first groove which serves as a rainwater guide and a second arm extending inwardly from the inner surface of the side portion below said first arm in parallel and spaced relationship to the first arm to define a second  
20 groove between the first and second arms for receiving the associated end edge of said glass pane.

2. A method for producing a front glass or windscreen moulding for a vehicle such as an automobile, comprising the steps of moulding synthetic resin into a preform in  
25 the form of a strip having a predetermined length, said strip comprising an integrally formed body having a laterally extending head or top and a leg extending

downwardly from said top at a substantially right angle to the top to partially define a first groove between the under surface of said top and the inner surface of the leg, said leg having at least one projection extending  
5 outwardly from the outer surface of the leg to serve as a moulding holder, bending said integrally formed body under heating into a substantially U-shape including a central portion and two side portions extending at substantially right angles to said central portion and  
10 each having a first arm extending inwardly from the inner surface of the side portion below said top to increase the depth of said first groove and a second arm extending inwardly from the inner surface of said leg below said first arm in parallel and spaced relationship to the first  
15 arm to define a second groove between the first and second arms, and cutting said body so as to include said first groove in said central portion for receiving the upper edge of a glass pane and include said first and second grooves in each side portion for guiding rainwater and  
20 receiving the associated end edge of said glass pane, respectively.

3. A moulded strip for holding a vehicle window, comprising a section which provides an inner groove and an outer groove, one of the grooves being removed along  
25 a central portion of the strip which receives the top edge of the window to leave outer rainwater guides along the remaining lengths of the strip which also receive the side edges of the window.

4. A moulded strip as claimed in Claim 3, in which the section is also formed with a locating projection to hold the moulding strip in the vehicle body.

5. A moulding for mounting a front glass pane in a vehicle, substantially as described herein with reference to Figs. 1 to 6 of the accompanying drawings.

5. A method for producing a moulding for mounting a front glass pane in a vehicle, substantially as described herein with reference to Figs. 1 to 6 of the accompanying drawings.